Special Issue

Baryon and Lepton Numbers in the Standard Model and Beyond

Message from the Guest Editor

In the standard model of particle physics, baryon number (B) and lepton number (L) represent accidental global symmetries violated only by non-perturbative weak effects, and the combination B - L is exactly conserved. The exact conservation of B and L has been questioned since there is no evidence that they are fundamental. In some theories on physics beyond the standard model, B or (and) L are violated, though constrained by the stability of matter. In fact, the breaking of B and L symmetries would have deep impacts on our understanding of nature, for example, the origin of matter and anti-matter asymmetry and neutrino mass. This Special Issue will include publications on experiments, phenomenology, and theory related to B and L symmetries in particle physics.

Guest Editor

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Editor-in-Chief

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